

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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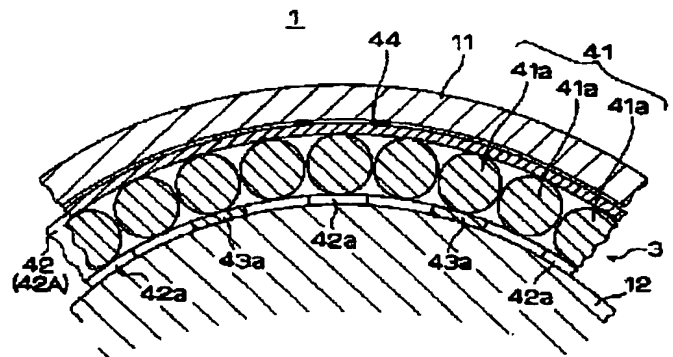
APPLICATION DATE : 14-09-99  
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APPLICANT : TAIYO LTD;

INVENTOR : TOKAWA TOMONOBU;

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TITLE : CYLINDER DEVICE AND MAGNETIC  
GENERATING DEVICE



**ABSTRACT :** PROBLEM TO BE SOLVED: To make a permanent magnet commonly usable regardless of the bore of a cylinder tube to reduce the cost for manufacturing the permanent magnet and to ensure the detection by a magnetic sensor.

**SOLUTION:** This cylinder device 1 is constituted so that the stroke position of a piston 12 sliding in a cylinder tube 11 is detected by a magnetic sensor. In this device 1, a magnetic generating device 3 comprises a permanent magnet member group 41 consisting of a plurality of permanent magnet members 41a arranged along the circumference of the piston 12 so that both magnetic poles are arranged along the axial direction of the piston 12 and each magnetic pole is turned in the same direction; annular magnetic rings 42, 43 arranged along the magnetic poles on both sides of the permanent magnet member group 41; and a resin ring 44 arranged on the circumferential surface of the permanent magnet member group 41 to fix the permanent magnet member group 41.

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